Remarks

This application has been reviewed in light of the Office Action of August 28, 2002. Claims 1-15 are pending, and all claims stand rejected. In response, claims 1, 4, and 9 are amended, and the following remarks are submitted. Reconsideration of this application, as amended, is requested.

Claims 1-15 are rejected under 35 USC 112 as being indefinite, and requests an explanation of particular claim limitations. Applicant traverses this ground of rejection in part and has amended the claims in part, and responds as follows.

Three concerns are raised by the explanation of the rejection.

1. The first concern is associated with claim 5 only, depending from claim 1, because only claim 5 presents the situation discussed in the explanation of this portion of the rejection. The explanation of the rejection raises the question, "It is not clear how the outer layer may possess less than 2 wt% on average, when it appears that it overlaps with the depth ranges in which there may be an average of 1-9 wt% Hf.

Response: An example may aid in following the relation of these limitations. This is a hypothetical example, prepared for this response only, and is not meant to duplicate reality. If the Hf content is 0.5 percent from 0-30 micrometers (outer layer in this example) and 5 percent from 30-50 micrometers, then both limitations (as well as the "about 0.1 to about 0.5 weight percent hafnium" limitation of claim 5) are met because the outer layer has less than 2 wt% and the range from 10-50 micrometers has an average of 2.75 percent. In the actual case illustrated in Figure 3 of the Specification, a similar situation holds, where the Hf content is low near the surface, higher at greater depths, and then falls again at even greater depths. See also para. [0019] of the Specification.

2. The second concern is associated with claim 4 only, depending from claim 1, because only claim 4 presents the situation discussed in the explanation of this portion of the rejection. The explanation of the rejection raises the question, "...claim

4 states, the Hf concentration has a relatively large second concentration, but is not to exceed 9 wt%, at depths below the protective coating outer surface."

Response. Applicant is not sure whether the Examiner is raising the same type of numerical inquiry here as found in Concern 1 above, or is raising the type of wording issue here as found in Concern 3 below. Applicant has responded to both, by providing a hypothetical example (next paragraph) and also by amending claim 4 to clarify the recitation of the ranges. If this response is not sufficient, Applicant asks the Examiner's assistance in understanding the issue raised to permit a further response.

See the same hypothetical example presented in response to Concern 1, with the added fact pattern that the Hf content is 0.1 percent at depths greater than 50 micrometers. The augmented fact pattern is fully consistent with claim 4, as the maximum Hf content is 5 percent. Claim 4 reflects the embodiment such as shown in Figure 3.

Additionally, claim 4 is amended to clarify the recitation. This amendment does not alter the scope of claim 4..

3. Applicant has amended claims 1 and 9 responsively by reversing the order of the last two parts of the recitation. This amendment does not alter the scope of the claims.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 1, 2, 3, and 8 are rejected under 35 102 over Darolia '471. Applicant traverses this ground of rejection.

The following principle of law applies to sec. 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed

invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

Thus, identifying a single element of the claim which is not disclosed in the reference is sufficient to overcome a Sec. 102 rejection.

Claim 1 recites in part:

"wherein the outer layer is substantially a single phase."

Darolia '471 has no such disclosure that Applicant can find. The explanation of the rejection does not suggest that Darolia '471 has any such disclosure.

Claims 2, 3, and 8 depend from claim 1 and incorporate this limitation.

There are other differences as well, but this distinction should be sufficient to distinguish the disclosure of the reference.

Accordingly, it is believed that claims 1, 2, 3, and 8 are patentable over this rejection.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 1-15 are rejected under 35 USC 102 as anticipated by Darolia '282. Applicant traverses this ground of rejection.

Claims 1 and 9 each recites in part:

"wherein the outer layer is substantially a single phase."

Darolia '282 has no such disclosure that Applicant can find. The explanation of the rejection does not suggest that Darolia '282 has any such disclosure.

The other claims depend from these independent claims 1 and 9 and incorporate this limitation.

There are other differences as well, but this distinction should be sufficient to distinguish the disclosure of the reference.

Accordingly, it is believed that claims 1-15 are patentable over this rejection.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Applicant submits that the application is now in condition for allowance, and requests such allowance.

I hereby certify that this paper (9 pages total) is being facsimile transmitted to the Patent and Trademark Office at fax 703-872-9310 on November 29, 2002.

Respectfully submitted,

Gregory O. Garmong
Reg. No. 29,382
Attorney for Applicant

VERSION WITH MARKINGS TO SHOW CHANGES MADE

underlined material is to be inserted, [bracketed] material is to be deleted, and --material set off by dashes-- is to be added.

Claims:

1. (Amended) An article protected by a protective coating, comprising:

a substrate having a substrate surface; and

a protective coating comprising an outer layer deposited upon the substrate surface and having a protective-coating outer surface, and a diffusion zone formed by interdiffusion of the outer layer and the substrate, wherein

the outer layer comprises platinum, aluminum, no more than about 2 weight percent hafnium, [substantially no added silicon, and] elements diffused into the protective coating from the substrate, and substantially no added silicon, and wherein

the outer layer is substantially a single phase.

4. (Amended) The article of claim 1, wherein the protective coating has an average hafnium composition profile comprising

a relatively small first concentration of hafnium in a first depth range adjacent to the protective-coating outer surface,

a relatively large second concentration of hafnium, but not exceeding about 9 weight percent, in a second depth range at greater depths than the first depth range below the protective-coating outer surface, and

a relatively small third concentration of hafnium in a third depth range at yet greater depths than the second depth range below the protective-coating outer surface.

9. (Amended) An article protected by a protective coating, comprising:

a substrate having a substrate surface; and

a protective coating comprising an outer layer deposited upon the substrate surface and having a protective-coating outer surface, and a diffusion zone formed by interdiffusion of the outer layer and the substrate, wherein

the outer layer comprises platinum, aluminum, hafnium, [substantially no added silicon, and] elements diffused into the protective coating from the substrate, and substantially no added silicon. and wherein the protective coating has an average hafnium composition profile comprising

from about 0.1 to about 0.5 weight percent hafnium averaged over locations from the protective-coating outer surface to a depth of about 5 micrometers below the protective-coating outer surface, and

from about 1 to about 9 weight percent hafnium averaged over locations from about 10 micrometers below the protective-coating outer surface to about 50 micrometers below the protective-coating outer surface, and wherein

the outer layer is substantially a single phase.